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ABSTRACT

The term "gender equity" can be described as being fair and just toward men and women, showing preference to neither sex, and concern for both sexes. A study addresses the covert and overt discrimination of girls and young women in the nation's elementary and secondary schools and presents and promotes strategies for educators to ensure equal educational opportunities for female students. Secondary purposes of the study include presenting ways to increase awareness of overt and subtle gender discrimination by male and female teachers that continues at all levels of education, and revealing the impact of these powerful effects on girls and young women that limit their career paths and life options. This paper presents strategies designed to promote strong self-efficacy and increased opportunities for success in the personal and professional lives of female students. The paper addresses the following issues: definitions of gender equity; the different voice; the different brain; different destinies for girls and young women; inequities in educational institutions; effects of gender inequities on female students; gender equity and technology; and strategies and solutions for gender equity. (Contains 25 references.) (BT)

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GENDER EQUITY IN EDUCATIONAL INSTITUTIONS: PROBLEMS, PRACTICES, AND STRATEGIES FOR CHANGE

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INTRODUCTION

> For practically all of the history of civilization, education has been for the elite, and educational practices have reflected an elitist orientation.
> Blakenship and Lilly

Girls and young women make better grades in school than boys and young men and very seldom exhibit problems with discipline; however, they suffer more from low confidence and self-esteem (Horgan, 1995). In addition, many female students are less likely to select rigorous courses like math or science and appear to avoid tasks that involve risk-taking for fear of failure. "One explanation for these puzzling facts is girls and boys tend to have different *attributional styles" (*p. 13). These styles appear to explain the fact that girls attribute their successes more to external causes such as "just being lucky" or "being given a simple task rather than a complex one". In contrast, boys and young men attribute their success to "their own" efforts and skills. This difference between male and female attributions reveals that girls and young women believe that external causes are responsible for their successes; boys, however, appear to have more self-efficacy because they believe that they will continue to have success in the future.

In addition to the diminished self-efficacy of female students in educational institutions, research regarding classroom interactions in schools show that teachers also contribute to the low levels of positive attributions for girls and young women. Data regarding classroom interactions in schools reinforce the existence of low level of expectations for female students by the "low-ability" messages that they receive from their teachers. Even though some girls and young women appear to be stronger and more resilient than their counterparts during the past several decades, others continue to face internal barriers and beliefs to success in their educational experiences. They also carry these barriers with them into their personal lives and their workplaces.

According to Grossman and Grossman (1994), American society is in the midst of a "process of achieving gender equity and redefining the relationships between males and females in all aspects of public life (p. xi), especially in the nation's public and private schools. The focus of this process includes the inequitable educational outcomes of females and males, the gender bias evident in ways that teachers (both males and females) favor boys in their classrooms, and the stereotyping of female and male students in the societal roles for which they are prepared. In gendered interactions, Carti (1994) indicates that gender is a set of social processes in which males and females, because they are treated differently, respond to differential treatment by behaving in ways that reinforce them. She believes that within "gendered interactions" the belief in these differences becomes a self-fulfilling prophecy--one that makes discriminatory stereotypes of girls come true, thus limiting their dreams and diminishing their lives. Other ways in

which young females are shortchanged involve the formal curriculum that reflects primarily male role and their accomplishments; however, these same materials present stereotypical roles for women, even presenting many negative images of females of all ages. In contrast, the "evaded curriculum" in schools refers to the lack of information regarding women's contributions or about special interest to girls and women (Horgan, 1995). In light of the plight of female students who continue to receive a diminished education that limits most of their life choices, steps must be taken by all educational institutions to make substantive revisions in terms of curricula, teaching strategies, teacher-student relationships, career guidance, and co-curricular and extra-curricular activities.

PURPOSE OF THE STUDY

> Systems of privilege undergird the structure of schools and are informed by differences such as gender, race, and social class. Koch, Irby, and Brown.

The primary purpose of this study is to address the covert and overt discrimination of girls and young women in the nation's schools elementary and secondary schools and to present and promote strategies for educators to ensure equal educational opportunities for female students. The strategies presented in this paper are designed to promote strong self-efficacy and increased opportunities for success in the personal and professional lives of female students. Secondary purposes of the study include presenting ways to increase awareness of both overt and subtle gender discrimination by both male and female teachers that continues at all levels of education and revealing the impact of these powerful effects on girls and young women that limit their career paths and life options. This paper addresses the following issues: definitions of gender equity, the different voice, the different brain, different destinies for girls and young women, inequities in educational institutions, effects of gender inequities on female students, gender equity and technology, and strategies and solutions for gender equity.

GENDER EQUITY

> Too often the terms "sex" and "gender" are used interchangeably in our society, often delimiting serious consideration of equity issues.
> Soldwedel

The term "gender equity" can be described as being fair and just toward both men and women, showing preference to neither sex nor concern for both sexes (Klein, S., Ortman, P., & Friedman, B. (2002). These authors define gender equity as "parity between males and females in the quality of life, academic, and work outcomes designed to promote these outcomes" (p. 3). Although "gender equity" is the preferred term for this social construct at this time, other names have been used to define the same or similar constructs such as women's educational equity and sex equity (Koch & Irby, 2002).

> The term **gender equity** is now used because it reflects the cultural construct of male and female roles and expectations rather than the biological aspects of sex differences, and includes the notion that many social institutions are gendered, with some form of inequity existing between men and women. (p. 6)

Koch and Irby also note that the name "gender equity" also distinguishes this term from that of "sex equity," a term that was often identified with sexual activity or sexuality. Gender equity is also an inclusive term, accommodating equity issues for both female males, making it a component of the more general term, educational equity.

Definitions of gender equity within schools, however, reveal the variation in teacher opinions of what this term means to educators (Grossman & Grossman, 1994). Although gender equity is often equated with "sameness" by teachers, their point of view is that gender equity is achieved when males and females participate in the *same* courses of study and extracurricular activities to the *same* degree, their achievement is the *same*, they are treated the *same* by their teachers, and they are prepared for the *same* societal roles (p. 119)." These authors, however, indicate that other teachers see gender equity as fairness, assuming that biological differences must be taken in to account in their education. These teachers believe that equity is achieved when both female and male students achieve their differing potentials through opportunities to take courses and participate in activities that they prefer, when their needs are met, and when they are ready for different roles in society. These beliefs when closely examined would surely continue result in both maintenance and tacit acceptance of the status quo regarding gender equity.

How gender equity in schools is defined is important because of the influence of this term on how teachers relate with both boys and girls and their expectations of them (Grossman & Grossman). The importance of the term "gender" is also highlighted by Carli (1994), who indicates that gender is used to make judgments and serves as a primary predictor of behavior (mostly based on gender). Gender is also used to assess male and female behavior by teachers who expect boys and girls to behave according to the stereotypical notions of girls who are only interested "sugar and spice and everything nice" and boys who are more interested in "snails and puppy-dog tails." Trouble occurs when teachers see non-feminine behavior from girls or non-assertive behavior from boys and make judgments about these violations of expected behaviors for both genders. In addition, Carli believes that "gender expectations become a 'filter' through which we screen our perceptions of the world" (p. 10) and that these "gender screens" often filter ways in which we view ourselves in the "world of work" and particularly the "world of home." Although changes in society occur quite often, gender filters allow traditional expectations to cloud expectations of gender and role. According to Koch, Irby, and Brown (2002), the evolution to "gender equity" from "sex equity" was a result of the need for a new definition that "reflects the cultural construct of male and female roles and expectations rather than the biological aspects of sex differences, and includes the notion that many social institutions are gendered, with some form of inequity existing between men and women" (p. 185).

THE DIFFERENT VOICE

> Our daughters deserve a society in which all their girls can be developed and appreciated.
>
> Mary Pipher

Gilligan (1982) provided the first psychological development model of the psychological and moral development of girls by studying the differential socialization of girls within our society. Prior to her research, all of the developmental models from Freud to Kohlberg were based on studies of boys and men. As a result of the results of her research on the development of females, research results, Gilligan attributed a characteristically "different voice" to females and suggested that the innate differences between males and females make the female voice only "different" from that of males and not "wrong or abnormal." In her landmark work concerning female development, *In a Different Voice,* this researcher found that female identity is defined by relationships, while male identity is defined by independence. Her research conclusions indicate that femininity is defined through attachments and threatened by separation and that empathy is "built in" to the female definition of self. On the basis of these seminal findings, Giligan concludes that empathy is "built in" to the female definition of self and that further training refines this trait. In contrast, masculinity is defined not by attachment but rather by a need for a son to separate from his mother; masculinity is also threatened by intimacy with others.

Further research by Brown and Gilligan (1992) with students at a private girl's school continued the exploration of the fate of the "voice" of female students within a single-sex school environment. As a result of their study, these researchers found that girls before the age of eleven are outspoken and confident, claiming their own authority in the world. They are also morally articulate and honest about relationships and things that hurt them; however, after the age of eleven years, these girls in a single-sex institution appear to reach a "psychological impasse." This dilemma occurs when they determine that their "intimacy" orientation and focus on relationships taught to them in childhood is not highly prized in a male-dominated culture. Following this discovery, these young women entered a period of self-doubt, ambivalence, and panic, perhaps evidenced by depression and the eating disorders that plague so many teenage girls. At the end of their study, Brown and Gilligan concluded that for girls to remain responsive to themselves, they must resist the conventions of feminine goodness and to remain responsive to others, they must resist the value placed on self-sufficiency and independence. Presented with a choice that makes them either selfish or selfless, many girls simply silence their distinctive voices. The substitute voice is breathy, apologetic, and hesitant, revealing that the once confident eleven year-old becomes scared and confused at sixteen, corresponding to a point in a young woman's life when she needs to make many important choices for her future.

THE DIFFERENT BRAIN

In this country, we bind the minds of our girls instead of their feet.
Carole Funk

In conjunction with socialization and developmental differences between the sexes, physical and biological differences between females and males exist as a result of "nature" rather than "nurture." These physiological differences between females and males result from the hormones that "sex" the brains of fetuses in unique ways, affecting both activity and performance. Brain physiology at Southwestern Medical Center Forensics Institute found significant physical differences between male and female brains and suggested that the female and male brains are actually "wired" in distinctly different ways. Further research supports these findings, indicating that male and female brains have not only different circuitry but also different physiology, chemistry, and information processing (deSimone & Durden-Smith, 1983; Hopson, 1987).

The corpus collosum is the thick bundle of fibers connecting the right and left hemispheres of the brain. According the original research by deLacoste (deSimone & Durden-Smith, 1987), the corpus collosum is twice as large in females than in males. With this larger link between their two brain hemispheres, females appear to have a stronger connection between their logical left hemispheres and their creative, affective right hemispheres, allowing females to switch back and forth between the hemispheres faster than males. These and similar studies indicate that males have more specialization in the function of their brain hemispheres and that the male brain seems to be more lateralized in the left hemisphere. Accordingly, language skill sites appear to be more localized in the left hemisphere of males; however, in females, the language ability appears to be evenly divided between the hemispheres with no lateralization.

According to deSimone and Durden-Smith (1983), differing brain chemistries and physiologies suggest that males have more difficulty with reading, more dyslexia, more stuttering, hyperactivity, and autism, while females are superior in language skills. Females also appear to have better verbal access to their emotional world in their right hemispheres. In contrast, males appear to be better at math and computational skills than females who tend to apply verbal strategies to math problems. Problem solving is accomplished in different ways for the sexes. Males visualize problems and problem solve with images, using their right hemisphere's penchant for visual-spatial relations to mentally rotate three-dimensional figures. Females, however, more often problem solve with words, reinforcing the larger connection between the left and right hemispheres but respond more to people and contexts (perhaps reflective of Gilligan's findings). Males seem to have less access to feelings because of their brain lateralization and appear to be more rule-bound and single-minded as a result. The female brain, in contrast, appears to be more intuitive, integrating both verbal and non-verbal information. It is also more sensitive to sound and tone of voice. Females also have finer finger-hand movement, while males have faster overall reaction time. Males, because of a burst of testosterone, react to stress with aggression; females, influenced by estrogen and progesterone respond to stress with depression. Because of the gendered brain that is "sexed" by different hormones before and after birth, female students and male students generally exhibit different learning needs and styles based on the differing uses of the left and right brain

hemispheres that affects the way they learn (deSimone and Durden-Smith, 1983). Although there are more similarities than differences between the sexes, many of the differences are related to differential brain structure and function. It is important for teachers and administrators in schools to understand these differences to provide appropriate learning experiences for boys and girls in the classroom.

INEQUITIES IN EDUCATIONAL INSTITUTIONS

> The school is a gendered culture.
> Patricia Schmuck

As a result of the influence and interaction of the different voice and the different brain within a societal context that involves both overt and subtle discrimination, sex stereotyping occurs in a myriad of ways for girls in this culture (Sadker & Sadker, 1986). The limiting role expectations that result from these factors continue to plague girls and young women through their elementary, secondary, and college educational experiences. Research results taken from classroom observations in the public schools reveal that boys receive more praise, cues, criticism, encouragement, eye contact, questions, and attention than do their female classmates. Male students also get more detailed assistance from teachers, while teachers *do* the work for girls who ask for help. According to these researchers, boys call for and get more attention from elementary and secondary teachers; therefore, earlier attention is given to them for learning and behavior disorders. Reinforcement is typically given to the more assertive and aggressive behaviors of male students by teachers who accept their answers out of turn, while girls are told by the same teachers to raise their hands.

Additional inequities are shown by teachers who not only allow students to be segregated by sex in classroom seating but also stand nearer the male section of the classroom. According to Sadker and Sadker, both male and female teachers are guilty of many such behaviors that lead to bias and discrimination against girls in their classrooms. These findings are very troubling when one considers that the majority of school teachers in both elementary and secondary schools are female and are continuing to perpetuate lowered expectations for students of their own gender. Many teachers, however, whether male or female, are not conscious of their discriminatory practices nor are they aware of the impact of these practices on the professional and personal futures of the "quiet, well-behaved" girls in their classrooms. It appears that subtle discrimination is hard to detect and even harder to fight.

According to Sadker and Sadker (1986), girls actually lose ground as a result of their schooling. They start school with higher test scores than boys but trail them by fifty-seven points when they take the SAT in high school. Girls lag in mathematics and science scores, and even those who do well in the advanced subjects tend not to choose math and science careers. These researchers asked, "What other group starts out ahead in reading, writing, even in math, and 12 years later finds itself behind?" (Sadker & Sadker, 1986, p. 515). According to Rousso and Wehmeyer (2002), most educational environments are more often characterized by gender bias--not by gender equity; although most teachers seek to be fair to all of their students, their bias is often unintentional or subconscious. These authors indicate that school policies, curricula, interaction styles of teachers and

students as well as other characteristics of the school culture are too often based on treating children differently because of their gender. They report that boys are given special advantages not given to girls, and this favoritism gives boys an advantage in the world of work and many other aspects of their grown-up lives. In addition, many other types of discrimination based on disability, race, ethnicity, or class serve to compound the disadvantages that females face in school.

Support for gender equity in schools by female principals was the subject of a study by Schmuck and Schubert (1995). Their research involved determining the attitudes of these administrators toward sex equity in order to test their hypothesis that female principals who have personal experiences with institutional discrimination would be more sensitive to gender bias and therefore more likely make changes to eliminate this bias. shape school policies. These researchers also expected women in principalships to become strong change agents toward gender equity for their female students; however, the results of this research revealed that only a few female principals in the study had taken action steps as leaders to address the sex inequities in their schools. Based on this study, it appears that female principals disclaim their unique status as women in order to become integrated into the "prevailing predominately male culture". In addition, the majority of the subjects of this research also reported that they had never experienced any sex discrimination in their careers, and the few that did report such bias did not relate the inequities they experienced into an educational plan to prevent girls and young women from the same biases.

Irby and Brown (2002) described similar responses from students in their Women in Education Leadership course after they saw a video regarding a lack of gender equity in America's classrooms. Following the video, small group dialogues revealed that these female administrators were unaware or unwilling to believe that the scenarios on inequities were happening in their schools. Their comments indicated that these women were uncomfortable, even defensive, because of what they saw on the videotape. Several of these women also noted that an "overemphasis of gender in schools could be counterproductive" (p. 43). These authors were surprised that women who were aspiring or practicing administrators felt that an emphasis on gender inequity was not an important leadership issue for them. Irby and Brown, following this experience, identified four major concerns that appear to be critical to the goal of preparing leaders to create truly inclusive school cultures. These concerns include using assessment techniques to establish a baseline for gender equity needs on a campus, creating a vision of a fully inclusive school, challenging and changing the attitudes that inhibit the movement toward equity through the subconscious resistance to changes that should or could be made, and changing the curriculum of their course to include an emphasis on steps that these women would need to make to develop and institutionalize schools.

Although the focus of this paper relates to gender equity in elementary and secondary schools, it is important to note that patterns of discrimination and bias that exist in these schools continue at the college and university levels (Sadker & Sadker, 1994). In their research they found that professors of both genders in institutions of higher education gave even less attention to female students than did their public or private school teachers. In university classes, young women are interrupted more often by their professors, are asked fewer questions, coached less, and given less time to respond to questions than are the male students. Professors also make more eye contact with male

students and ask them higher-level questions (Funk, 1994). Overall, the interaction of university faculty with females decreases another twenty-five percent from the already low level of interaction they had with their 4th, 6th, and 8th grade teachers. Female college students experience the "okay" classrooms, in which they get more acceptance than praise, criticism, or remediation. Professors make more eye contact with male students and ask them higher-level questions while female students are asked lower-order questions. Given the evidence from the Sadkers' research, the move to higher education institutions by young women provides the most powerful discrimination patterns against female students than in any other types of schools in their educational carecrs.

In 1991, researchers at Wellesley College's Center for Research on Women headed the review of existing literature on girls' experiences in public schools under the auspices of the American Association of University Women Educational Foundation. The result of this study was the publication of *How Schools Can Stop Shortchanging Girls (And Boys): Gender Equity Strategies, A Practical Manual for K-12 Educators.* This book represented a seminal work that revealed that boys and girls in American schools are not receiving the same education even when they are in the same classrooms. This report included the problems between genders in education as: ignoring girls' educational needs, the lower status of girls in schools, the testing bias regarding gender, curricular biases in teaching practices and content, and the "evaded" curriculum (subjects ignored in schools). The most salient recommendations of this study included the following: freeing both boys and girls from sex-role stereotypes and gender bias, helping all students to investigate and participate in a wide-ranging educational that will make them self-sufficient and well rounded, preparing both boys and girls for roles in the family, learning about other cultures and the problems that result from sexism, and assisting and supporting educators to eliminate gender inequity in schools so boys and girls might achieve their fullest potential.

DIFFERENT DESTINIES

> Throughout the history of education in America, the angle of the school door has determined the direction schoolgirls travel to different adult destinies.
>
> Sadker and Sadker

Sex role socialization and sex stereotyping begins at birth when parents attribute infant girls in their hospital cribs as softer, finer featured, smaller, and less attentive than infant boys although hospital records revealed no significant differences between the infants of both sexes (PBS/Nova, 1981). Parents, consciously or subconsciously, continue this differential treatment as girls develop into young women by expecting them to be friendly, quiet, obedient, and careful and to appreciate protection from boys, who are encouraged to initiate, take risks, experiment, and explore unknown territories. Because boys are taught early in life that girls are not competitive match for them, girls who are competitive threaten a boy's masculinity. The price that girls have to pay for excellence could be loneliness, and for most girls, it is too high a price to pay (Josefowitz, 1980).

Approval for "acceptable" feminine behavior" begins at home but is continued and reinforced at school. Thus, the old adage stating that "little girls are made of sugar and spice and everything nice" appears to remain the social standard for the generation of females leaving our schools and universities in the 21st century. Although the door to

today's schools is not locked and barred for women as it has been in the past, Sadker and Sadker (1994) indicate that schoolgirls continue to face subtle and even insidious lessons regarding their gender that may appear to be rather insignificant "but that have a powerful cumulative impact" (p. ix). According to these authors, gender inequities continue to shortchange girls and women by chipping away their self-esteem. Parents are "their children's first and most enduring teachers" (Sadker & Sadker, 1994, p. 253) and play a strong role in a child's gender expectations, often unknowingly. In everyday life, parent's expectations impact the development of their children in their behaviors and their conversations. According to these authors, mothers and fathers are unintentionally reinforcing the stereotypes that boys and girls at play receive quite different messages regarding perseverance and courage from their parents.

Differing gender expectations also involve less attention from fathers to girls' activities than to their brothers' activities. Parents also praise their daughters in different ways from their brothers, giving compliments to girls for their appearance but praising boys for achievement, especially in sports. Toys that parents choose for their children also have an impact on their "personality traits, interests, and even physical and academic skills" (Sadker & Sadker, p. 255). In light of these salient factors regarding these differing gender expectations for boys and girls, these researchers indicate that these expectations "are at the heart of academic achievement" (p. 256), especially in math and science, areas in which they are expected to be weaker than their male counterparts. The role of fathers in assisting in having their daughters persevere in difficult advanced courses in these fields is central to their later success. As one female engineer noted about her father's support, "He never saw failure in anything I tried. And he continuously encouraged me to try anything and everything. He recognized my math and science ability, and *he* signed me up for engineering. . . . If my guidance counselor had *his* way, I would have been a liberal arts major because women just didn't go into engineering (p. 257). Such is the power of building the self-confidence of a young woman at a critical time in her life; without such support her destiny would certainly be different. All parents and educators should take steps to support risk-taking and build self-esteem for the women-to-be who could change the destiny of our world.

EFFECTS OF GENDER INEQUITIES ON GIRLS AND YOUNG WOMEN

> America today is a girl-destroying place. Everywhere girls are encouraged to sacrifice their true selves. Mary Pipher

The combined effects of sexism and discrimination, both knowlingly and unknowingly, by the school, society, and the family have continued to limit the minds and lives of girls and young women by *binding their minds* instead of their feet. These effects of narrowed expectations and differential treatment have had the following results of developing girls and young women:

- Permanent damage to self-confidence and self-esteem
- Silencing of the distinctive *female voice*
- Hesitancy to take risks and learn independence
- Acceptance of spectator role and not participant role in activites

- Under-estimation of scholarly ability
- Lowered career aspirations
- Limited choices in all aspects of life.

The results of the "miseducation" that girls receive in schools are clear from the research, "the most obvious is the difference between the sexes in later achievements" (Horgan, 1995, p. 8). Other impacts include problems with low self-esteem and lose their resilience, their immunity to depression, as well as their sense of themselves and their character (Gilligan, 1982). Given these results of low self-confidence and self-esteem, their standards for themselves are so diminished that they select non-challenging courses, thereby closing off certain career paths forever. Even for young women who are given more chances in their educational systems, they are still deeply affected by the mixed messages that they receive from others (Horgan, 1995); even their "successes don't ensure their self-confidence or high self-esteem" (p. 9).

Pipher (1994) built upon Gilligan's work regarding the loss of self by noting that bright, sensitive girls pick up the cultural ambivalence about women, yet "don't have the cognitive, emotional and social skills to handle this information. They struggle to resolve the unresolvable and to make sense of the absurd" (p. 43), and become overwhelmed and just "look shelled" (p. 43). According to Pipher, girls in this situation have four ways that they use to react to the cultural pressures to abandon who and what they are--resulting in an abandonment of self. They can "conform, withdraw, be depressed, or get angry (p. 43).

GENDER EQUITY AND TECHNOLOGY

> Girls have less high school preparation in computing than do boys, which in turn discourages them from enrolling in college-level computer science programs.
>
> Margolis and Fisher

Since the time that researchers addressed the issue of gender equity in books and journals during the 1980s and 1990s, a wealth of new topics under the umbrella of gender equity have been identified. These include the use of technology, sexual and physical harrassment in the workplace, maternity and paternity leave, and the continuing need for more covert inequalities found within the wide diversity of needs regarding gender equity issues (Koch & Irby, 2002). In 2001, members of the American Association of University Women's Educational Foundation's "Beyond the Gender Wars Symposium" some participants described a gender gap "between what is technically available to boys and girls and what students themselves *perceive* to be available or possible." Although some changes have been made according to the participants, they report that recent reports on "girls, computer science, and technology" indicate that computer clubs and informal settings in junior high and high school are considered informally as "male territory." In addition, symposium participants described continuing inequities that persist in spite of some gender equity improvement. They noted that increased participation by middle-class girls in mathematics and science courses at levels near that of boys has not resulted in more girls going into the sciences and technology. In addition, those attending this seminar also described how the gap between boys and girls could inhibit not only their selection of courses but also their majors or their careers.

Castell, Bryson, and Jenson (2002) noted "that it has become commonplace . . . that many girls and women are neither full, nor even interested, participants in the digital world of the twenty-first century (p. 7). They also indicated that even though female students have made great strides in math and science, "girls and women are staying away in droves from computer-intensive areas of the curriculum--and of the culture (p. 7). These authors also noted that the kinds of technological tools used and the access to these new tools provide the culture in which gender performances are specifically shaped and that for technology to become a non-issue for females, schools must deliberately "overturn the established order governing relations among girls, tools, and schools (p. 8).

STRATEGIES AND SOLUTIONS FOR GENDER EQUITY

It's time for the gender journey.
Orenstein

The main focus of America's schools and universities should be academic excellence for all students, female and male, including curricular and teaching excellence that will allow students of both genders to set and reach their personal and professional goals and acquire the skills of creative think and problem solving, along with the development of rational judgment and a broad sense of perspective. for female students. Whether in coed or single-sex institutions, this focus on excellence for all should include curricula, texts, materials projects, and activities that reflect the contributions, concerns, and issues related to women and their unique characteristics and needs. Beyond the basic elements that serve as the foundation for academic excellence, education for female students can be specifically adapted through supplementing and complementing existing educational experiences in schools and universities. The school and university curricula should provide inclusion through infusion throughout the curriculum of experiences that can better serve the unmet needs of female students who have been shortchanged in the educational process. The following strategies and solutions are proposed on the basis of needs implied in the literature to all the "different voice" of female students to become and integral and valued part of school cultures.

In 1992 the AAUW report listed forty recommendations designed to reverse gender inequities and their impact on the lives of girls and young women. The following represent the significant themes of these recommendations that are still relevant in today's culture (Rousso & Wehmeyer).

1. Strengthened reinforcement of Title IX is still essential.
2. Teachers, administrators, and counselors must be prepared and encouraged to bring gender equity to every aspect of schooling.
3. The formal school curriculum must include the experiences of women and girls from all walks of life.
4. Girls and boys must see women and girls reflected and valued in the materials they study.
5. Girls must be educated and encouraged to understand that mathematics and the sciences are important and relevant to their lives. Girls must be actively supported in pursuing education and employment in these areas.

6. Continued attention to gender equity in vocational education programs must be a high priority at every level of educational governance and administration (p. 84).

Horgan (1995) proposes these equity strategies that will benefit all students:

- Link effect and performance.
- Focus on success, use success to predict future performance.
- Emphasize pervasive, permanent, and internal explanations for success.
- Emphasize specific and temporary explanations for failure.
- Offer hope after failure, and redefine failure.
- Focus on choices and control, and teach optimism (p. 123).

Brown and Irby (2002) support the following strategies for promoting gender equity in schools that include the components of Rose, Kolb, and Barra-Zuman's (1990) equitable school continuum.\

- Look critically at present school practices to establish a baseline for change.
- Create an inclusive school in which quality and success are provided to all students.
- Use the Self-Assessment Gender Equity checklist for administrators (based upon the work of Rose, Kolb, and Barra-Zuman (1990) called "The Equitable School Walk").
- Use assessment data on the ten components of the walk including "physical environment; curriculum; extracurricular and cocurricular offerings; role modeling. student assignment; behavior management; student support; language; teaching methods; and academic evaluation." (p. 46).

Particular attention within these categories was given to a multi-cultural and gender-fair curriculum, adults who model professionalism, school activities that are accessible to all students, student assignment that guarantees integration by gender, race, ethnicity, and special needs, equitable treatment for behavior problems with no denigration of students, support for all students while attending school, appropriate language usage by teachers and students, classroom teaching involving equitable strategies to include all students, and teacher fairness in evaluating and reporting academic performance and giving praise.

SYNTHESIS OF STRATEGIES FOR GENDER EQUITY

> Reducing gender bias in schools requires a multifaceted, collaborative effort among people involved with schools. Wheeler

This synthesis of strategies was developed by the author of this paper who utilized the most salient problems regarding gender equity in our nation's schools and then developed appropriate strategies that would address these targeted problem areas. The strategies are presented in several main categories: Curriculum and Instruction Strategies, Strategies for Changing Educational Cultures, Methodological Strategies, Strategies for Assessment and Evaluation, Strategies for Counseling and Advising, and Staff Development Strategies for Equity.

Curriculum and Instruction Strategies

1. Implement after-school or summer programs at school or universities to increase girls' interest and experience in science, mathematics, and technology for girls and other

minorities in elementary and secondary schools with teacher encouragement in regular classes to supplement and complement these efforts.

2. Ensure that girls and other minorities receive equal opportunities for laboratory experiences, computer training and practice, and advanced instructional techniques.

3. Ensure that mathematics, science, and technology teachers at all levels have a basic understanding of instructional strategies that are appropriate for and encourage girls and other minorities in these critical areas of education.

4. Ensure that girls and other minorities have equal access to the use of computers and other cutting-edge technology.

5. Take care that teacher staffing ensures the hiring or female and ethnic role models in mathematics, science, and technology.

6. Ensure that non-biased teaching strategies and practices are integrated into the curriculum as well as the culture of the classroom.

7. Provide classroom climates that model the giving of respect the dignity and worth to all students within those environments.

8. Assess the school's percentage of students who are in co-curricular and extracurricular activities and revise offerings to be inclusive of all students.

9. Set up classroom groupings based upon practices that are gender-equitable and stress cooperative and collaborative group processes.

10. Take positive steps to identify and address negative stereotyping, noting the limitations that are placed on those who are being stereotyped.

11. Include parents in the process of exploring non-stereotyping educational strategies that can be used at home as well as school.

12. Assess and redesign curricula, programs and courses to reflect the contributions, concerns, and issues of girls and other minorities to the nation and the world.

13. Provide curricular and co-curricular experiences that encourage and enhance leadership skills of female and other minority students.

14. Ensure that the informal and formal curriculum includes activities and experiences for girls, especially those between the ages of 10 and 16 that allow their voices to be heard, valued, and rewarded in social as well as academic settings.

15. Use inclusion and infusion throughout the curricular planning process to ensure that curricular and instructional goals and objectives address content and methodology, both affective and cognitive, to provide equitable experiences for all students in elementary and secondary schools with teacher encouragement supplementing these efforts.

16. Develop learning circles or other types of cooperative learning groups with equal numbers of female and male students and set norms that allow equal talk time to each student in the group. to ensure

17. Model and teach assertive behavior as a integral part of the school curriculum.

18. Develop curriculum goals and instructional objectives that will allow all students to feel important and valued, and model, practice, and internalize behaviors that will allow all them to know that they are valued.

19. Include collaborative leadership models as a part of the school curriculum, using female and minority school leaders as role models to establish school cultures that are webs of inclusion.

20. Give girls and other minority leadership roles in curricular and co-curricular activities in order to allow them to test, refine, and internalize leadership skills and leadership models learned in their classrooms.

21. Utilize the school curriculum to broaden and enrich the experiences of female and other minority students in real-world, practical experiences in order to overcome experiential limitations for students who have been more sheltered than their male counterparts.

22. Apply the findings of sociological and development research regarding best practices for educational equity and utilize as components of core curricula in schools.

23. Provide interdisciplinary projects and assignments to all students to allow them to learn through the context of their own life experiences or political, social, and cultural realities.

Strategies for Changing Educational Cultures

1. Review the culture of the school through the "eyes" of female and minority students to identify inequities in school policies, practices, and behaviors and make needed changes a priority of school administrators and school boards.

2. Change school cultures, including norms, mores, expectations, and values in ways that include, involve, honor, and reward all students.

3. Raise cultural norms of schools to include valuing of ideas and contributions of female and minority students and to raise expectations of administrators and teachers concerning their careers and personal potentials.

4. Establish new traditions and school mores that are inclusive of the interests, values, and needs of all students.

5. Provide "school communities" that include and model decent, nonviolent, and responsible behavior and nonviolent conflict resolution as a part of citizenship training.

6. Devise seating patterns and group membership to ensure that classrooms and other school groupings are not segregated by gender or ethnicity..

7. Assess and change school cultures to encourage active, not passive, participation of girls and other minorities in all types of school activities--curricular and extra-curricular.

8. Establish student networks to stress the need for all students to learn the importance of networking and being team players in school and their future workplaces.

9. Have teachers and students identify and examine stereotypes and stereotyping behaviors, and reframe stereotyping into positive approaches in working with all students.

10. Make the role of "player" and not "spectator" a reality for all students who should learn and practice leadership skills and fulfill significant leadership roles in and out of the classroom.

11. Give all students the opportunity to use their "distinctive voices" in all aspects of the school culture and positively reinforce them for voicing their opinions and being validated regarding these opinions.

12. Appoint more females and other minorities to administrative position to serve as role models in schools and provide different patterns and styles of leadership.

Methodological Strategies

1. Design learning experiences that take into account the physiological brain differences between male and female students.

2. Expand teaching methodologies to include instructional techniques that are aligned with learning styles of female students suggested by current brain research studies.

3. Teach female students to develop more effective spatial relations skills through concrete experiences in classroom activities, involving kinesthetic methods and hands-on materials, especially in math and science courses.

4. Teach girls to use right-hemisphere verbal approaches for problem solving as well as those for the left hemisphere.

5. Provide learning experiences that integrate theory with experience and utilize cognitive processes that include feeling and empathy as well and thinking skills to acknowledge and reward female learning preferences.

6. Individualize reading assignments for female students, allowing them to read about the thoughts and insights of girls and women.

7. Shape the behaviors of all students to allow them to experience success by encouraging and rewarding risk-taking behaviors in order to bolster self-confidence and self-esteem.

8. Provide individual attention and assistance to all students, easing them into more self-direction with the use of a situational leadership model.

9. Establish procedures to provide a positive, supportive classroom climate with a high level of involvement of all students with balanced teacher-to-student and student-to-student interaction.

10. Use more small group activities in classrooms and train students in appropriate small group roles, encouraging all students to learn in collaborative rather than competitive ways.

11. Use more cooperative learning strategies or learning circles in classrooms, stressing cooperation instead of competition.

12. Evaluate questioning techniques used in classrooms to ensure that higher-order questions are asked of all students and that wait-time and cues are not inequitably distributed.

13. Increase classroom participation by using name cards to ensure that all students are required to respond to questions with equitable "wait-times."

14. Encourage all students to challenge ideas and disagree with other opinions in order to teach critical analysis, not simple acceptance of other's ideas or "right answers."

15. Teach all students to accept and honor feedback and not to personalize it.

16. Make every effort to identify and reduce the levels of "achievement anxiety" in all students.

17. Ensure that teachers and student do not interrupt other students when they are speaking, or discounting, ignoring their input in class, or not accepting ideas put forth by students as their own.

18. Provide support and classroom involvement for female and other minority students since these two characteristics inherent in the non-biased classroom.

19. Set high expectations for all students and use shaping and reinforcement to let them know they are making progress..

20. Avoid the use of maternalistic or paternalistic teaching or leadership styles with all students in order to remove any stereotyping begun in the nuclear family.

Strategies for Assessment and Evaluation

1. Give earlier and more frequent feedback on student performance to reduce achievement anxiety of all students.

2. Use more authentic assessments to supplement the use of teacher-made and standardized testing in order to reflect a broader range of student achievement.

3. Give all students opportunities to take "practice tests" so they can practice at the cognitive levels required on tests in problem-solving activities.

4. Provide all students with meaningful, specific feedback and fair and accurate assessment throughout a course to provide formative as well as summative assessment to provide them with assessment information on an on-going basis.

5. Show the value of self-assessment by allowing students to evaluate their own work as individuals and members of work groups.

Strategies for Counseling and Advising

1. Provide early career counseling in schools so that all students can build on a foundation of learning about possible careers by studying and observing career options through the early years of elementary schools.

2. Ensure that school counselors encourage and support the interest and enrollment of students in mathematics and science courses so that their career and life options will not be permanently limited.

3. Teach and advise all students to become more independent learners through the use of situational leadership, beginning with more structure and direction, allowing experiences for success, reinforcement of that success, and strong self-directed behavior.

4. Teach students to identify their own negative self-talk and to "tame their internal gremlins" by learning about and practicing positive, internal self-talk.

5. Increase risk-taking by encouraging students to voice their opinions in class, learning how to challenge or confront teachers and others positively.

6. Teach all students to identify and respond appropriately to sexual harassment, building on a strong value of self and self-esteem as a base for handling these incidents.

7. Ensure that all students have mentors and sponsors as well as support systems and networks throughout the educational process.

8. Teach all students how to broker the system and handle the politics of schools and the appropriate behaviors for interacting with others.

9. Seek active ways of strengthening healthy resistance and courage in girls and other minorities to bring their voices out beyond the confines of school.

10. Encourage female students to keep journals, to amplify their voices for themselves before their voices are silenced forever.

Staff Development Strategies for Equity

1. Provide staff development for teachers and administrators so they can be aware of any subconscious biases regarding their students.

2. Retrain school counselors and teachers to expand the horizons of all students regarding their abilities and options in life and career options.

3. Eliminate non-equitable language and behavior in the classroom through teacher awareness and professional development sessions designed to promote educational equity.

4. Use videotaping, peer observations, and data collection in school classrooms in order to identify and remove any inequitable teaching practices.

5. Study and refine responses to all students through data collection on type, style, and frequency of verbal and non-verbal reinforcement and make needed changes that are indicated in the data.

6. Provide professional development in order to allow teachers to identify and eliminate sexual or other types of harassment of students in all educational settings.

7. Ensure that learning environments and cultures are very personal, intimate, and caring.

8. Provide leadership to teaching colleagues to address equity issues as they apply to the total school environment and culture.

9. Identify and change ways in which school visual displays include the presence of all students leadership and support roles to communicate institutional equality.

10. Develop an agenda for staff development to ensure that school environments enhance the learning of all students.

11. Develop presentations for parents regarding stereotyping and ways in which they can become advocates for the daughters and their sons.

Ensure that educational leaders create and track a data based system that tracks the educational progress of females and males to ensure gender equity.

Utilize classroom guidance opportunities to teach young women and men the opportunity to teach negotiation, interpersonal, and conflict skills in a safe environment.

Provide recognition of achievement for academic excellence to ensure that success in academics are rewarded, thus providing self-efficacy (leadership and counseling)

Develop healthy self-concepts, self-awareness, and a sense of responsibility in activites within classrooms and in school curricular and extracurricular activities (counselors and teachers)

Provide students with up-to-date information regarding occupational information to increase their understanding of job requirements as they prepare to enter a choice of career fields from secondary schools or universities

Increase the type and quality of curricular and extracurricular activities that will allow more students of both genders to feel a sense of belonging at school and in college.

SUMMARY

True educational reform will happen when girls, as well as boys, become all they can be.
Jackie DeFazio

In American schools and universities, girls and young women continue to be a gender at-risk. As educators at all levels of education in the United States utilize more stringent curricula as a result of the testing phenomenon, continuing reforms must be implemented that prepare all students for the future. Steps must be taken to ensure that reform measures include those that address the gender inequities that exist for female students in our nation's schools. Strategies and solutions designed to promote gender equity for girls and boys that address gender problems in schools and colleges, involving changes in school cultures, climates, curricula, teaching methodologies, counseling and advising, and retraining of school and university personnel awareness of the impact of differential treatment for girls and young women and the best practices to use in classrooms to ensure quality education experiences for both genders. Without critical changes in all educational systems that reform the covertly unequal schooling for females, women of the 21st century will never be able to *hold up their half of the sky.*

Koch, Irby, and Brown (2002) note that when they are asked about the need for gender equity in education, they noted " . . .we respond that daily in our own society and around the world, we witness inequities and injustices in the closely aligned oppressions

of sexism and racism" (p. 181). According to these authors, the conditions in American society have been "consistently, systematically, and disproportionately unequal and unfair, and the major casualties have been those students who differ significantly in social class, race, ethnicity, native language, and gender from what is considered the 'mainstream." They also indicate that equity in school leadership roles have certainly not been reached in public education in the United States since only 13% of public school superintendents are women although 72% of K-12 teachers are women. The problem in public universities is also perpetuated through the lack of the female voice in academic discourse and steered away from dissertations regarding gender equity as though it were a field of low repute. Their continued hope is that programs in education for teachers and for educational administrators will put gender equity at the top of their priority lists and institutionalize "gender and schooling" courses, then requiring educators to address gender equity issues. As the writers indicate, "At the heart of this discussion lies the central question, "In what ways can teachers, and school administrators intervene on behalf of females and males to maximize their learning outcomes and potential for future success" (p. 190). Although the field of gender equity has made strong advances over the last two decades, education at all levels in the United States is not providing equity in schooling for all people, regardless of sex. In order to realize the dream of gender equity, continued efforts must be made, and steps must be taken to continue to "put this issue on the front burner of our national agenda" (Klein, Ortman, & Friedman, 2002, p. 24). As the authors indicate, "Gender, on the one hand, is not perceived as a problem; on the other hand, it is a *major* problem (p. 182).

In 1997, Sanders stated that today's teacher education students will be responsible for teaching the next generations of American children and insists that teacher educators are taught about gender equity in their training programs. She indicates that, "If we want an America in which girls and boys are treated, and treat each other, with respect and kindness, and in which girls as well as boys are urged and expected to fulfill their potential without restriction (p. 1). In describing the expectations and attitudes regarding females in mathematics, science, and technology, this author also addressed the notion that males excel in these areas that are simply subliminal cultural beliefs of adults that are passed down from past generations and that give off messages to girls that they cannot be successful in these fields. Without teachers understanding these problems, Sanders notes that adults of both sexes as well as boys and young men reinforce these notions through their interaction with girls and young women. Given the problems inherent in adults and children who are transferring cultural values without notice or challenge, it appears that seeing significant differences in the number of girls and women going into technology and the sciences will not occur unless steps are taken to deliberately address and change these assumptions..

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